

CLAIMS

1. A rare-earth sintered magnet, a main phase of which includes an $R_2T_{14}B$ type compound phase, the magnet comprising:

27 mass% through 32 mass% of R, which is at least one
5 rare-earth element that is selected from the group consisting of Nd, Pr, Tb, and Dy and that always includes at least one of Nd and Pr;

60 mass% through 73 mass% of T, which is either Fe alone or a mixture of Fe and Co;

10 0.85 mass% through 0.98 mass% of Q, which is either B alone or a mixture of B and C and which is converted into B on a number of atoms basis when its mass percentage is calculated;

more than 0 mass% through 0.3 mass% of Zr;

15 at most 2.0 mass% of an additive element M, which is at least one element selected from the group consisting of Al, Cu, Ga, In and Sn; and

inevitably contained impurities.

20 2. The rare-earth sintered magnet of claim 1, comprising

substantially no accumulated phases of Q.

3. The rare-earth sintered magnet of claim 1 or 2,
wherein the additive element includes Ga, which accounts for
5 0.01 mass% through 0.08 mass% of the magnet.

4. The rare-earth sintered magnet of claim 3, comprising
at most 0.95 mass% of Q.

10 5. The rare-earth sintered magnet of claim 4, comprising
at least 0.90 mass% of Q.

6. The rare-earth sintered magnet of one of claims 1 to
5, wherein the magnet has a square ratio H_k/H_{cJ} of at least
15 0.9 in its demagnetization curve.

7. A material alloy for a rare-earth sintered magnet, a
main phase of which includes an $R_2T_{14}B$ type compound phase, the
alloy comprising:

20 27 mass% through 32 mass% of R, which is at least one

rare-earth element that is selected from the group consisting of Nd, Pr, Tb, and Dy and that always includes at least one of Nd and Pr;

60 mass% through 73 mass% of T, which is either Fe alone
5 or a mixture of Fe and Co;

0.85 mass% through 0.98 mass% of Q, which is either B alone or a mixture of B and C;

more than 0 mass% through 0.3 mass% of Zr;

at most 2.0 mass% of an additive element M, which is at
10 least one element selected from the group consisting of Al, Cu, Ga, In and Sn; and

inevitably contained impurities.

8. The rare-earth alloy of claim 6, comprising
15 substantially no accumulated phases of Q.

9. The rare-earth alloy of claim 7 or 8, wherein the additive element includes Ga, which accounts for 0.01 mass% through 0.08 mass% of the magnet.

10. The rare-earth alloy of claim 9, comprising at most
0.95 mass% of Q.